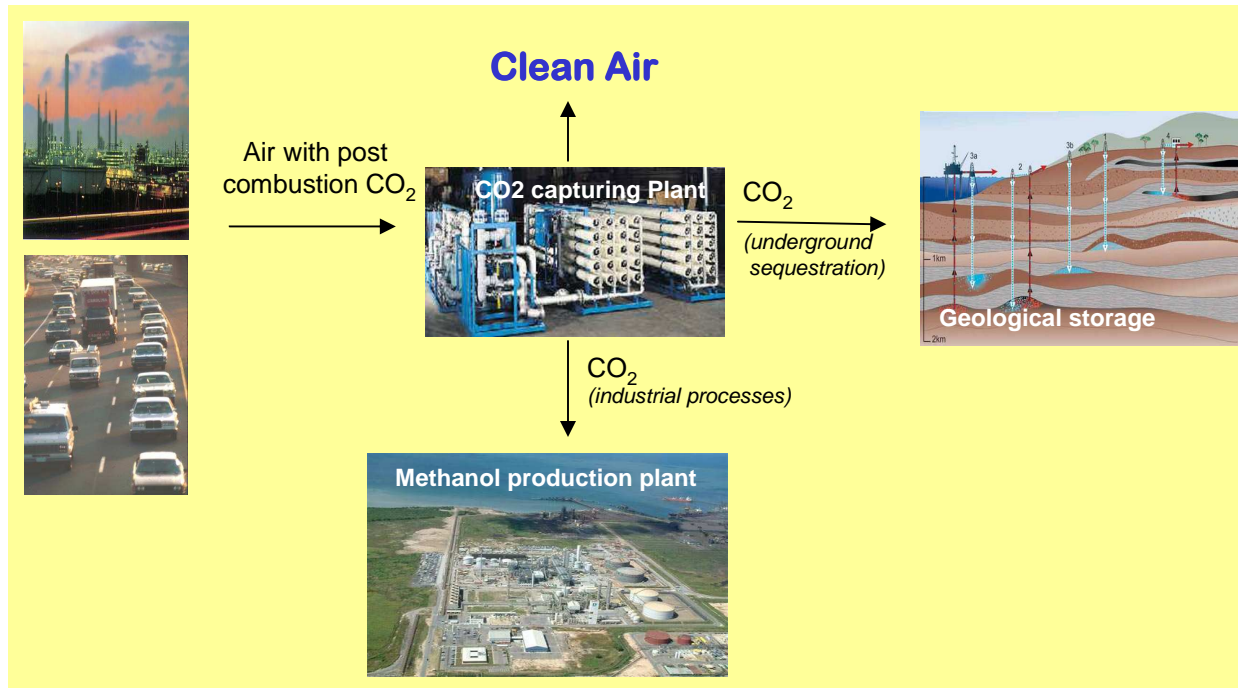


CO₂ Capturing Plant for Green House Gas Reduction

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The Concept



- Extract post combustion CO₂ from industrial, transportation or other sources.
- CO₂ capturing plant located in an optimum location for CO₂ geological storage, eliminating transportation costs.
- Extracted CO₂ could also be used for methanol production.

Concept description and goals

CO₂ Capturing Unit Development:

- Percent CO₂ reduction in 2020: 12.2%
 - Emission levels comparable to 1990 level.
 - Each CO₂ capturing plant would account for a 2.2% reduction in the CO₂ emission.
- Concentrate >30,000 tons CO₂/day from air
 - such as emitted by the fuel combusted from a median sized refinery or power plant.
- Materials optimization
 - Energy Efficient electrochemical extraction process.
 - Large area membranes.
 - Low cost technology.

Cost Summary

Total costs = Plant's capital expenses + H₂ costs + CO₂ injection - Recaptured
operation & maintenance & storage electricity

Cost components	Cost / ton CO ₂ Captured	Cost / ton CO ₂ Captured
	20% efficiency and at current H ₂ prices	100% efficiency and DOE targeted H ₂ prices for 2017
CO ₂ capturing plant (capital, operation & maintenance)	\$5	\$5
H ₂	\$362	\$43
CO ₂ injection and storage	\$5	\$5
Recaptured electricity	\$91 (offset)	\$18 (offset)
TOTAL	~\$281	~\$35

- CO₂ capturing costs can be driven down to \$35 /ton CO₂ which is competitive with proposed credits and is cheaper than suggested sequestration techniques from flue gas